Docket No. 38-21(52743)B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of Jindong Sun *et al.*
Serial No. 10/783,710
Filed: 02/21/2004
For: Transgenic Plants

Art Unit: 1638
Examiner: David H. Kruse

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR 1.132 OF PAUL CHOMET

I, Paul Chomet, declare:

1. I received my Bachelor of Science degree in Zoology at the University of Rhode Island, Kingston, RI, and my doctoral degree in Genetics from State University of NY at Stony Brook, NY. I joined Monsanto Company in July 1992 and presently serve in the role of Senior Scientist, Water Use Efficiency Discovery. In this declaration, I report results of screening and analysis of transgenic corn plants for identification of plants having improved water use efficiency.

2. I understand that this application relates to the expression in transgenic plants of a plant transcription factor, G1073 (SEQ ID NO:1), and homologous transcription factor sequences with 70% or greater identity to G1073, to generate plants having improved water use efficiency. In my role as Senior Scientist, Water Use Efficiency Discovery, I identify and study transgenic plants that have been transformed at Monsanto, and identify genes whose expression results in improved water use efficiency phenotypes in the transgenic plants. I am therefore familiar with the present invention.

3. The following data demonstrate that expression of G1073, homologous transcription factors derived from rice and soy, and the *Arabidopsis* G1067 gene can result in improved water use efficiency in transgenic corn plants. Results are provided as a construct level summary of analysis of individual events. Positive results displayed as POS(a) or POS(b) indicate significant positive results after a single analysis. Positive results displayed as POS(c) indicate marginal positive results after a single analysis. Table 1 provides field and greenhouse data from 2004 to 2007. Table 2 provides field and greenhouse data from 2004 to 2009.

Table 1. Analysis of corn plants overexpressing G1073 and related sequences for enhanced water use efficiency Field and Greenhouse Data 2004-2007

Construct Name	Gene Description	Gene ID	Promoter	Field* Screen	Greenhouse Wilt Screen	WUE Field Trial**
PMON100458	PHE0000372 G1073	PHE0000372	A	Neu	NA	NA
PMON72460	PHE0000372 G1073	PHE0000372	B	Neu	POS(a)	Neu
PMON96050	PHE0000372 G1073	PHE0000372	C	screened	screened	Neu
PMON96088	PHE0000372 G1073	PHE0000372	D	NA	NA	POS(a)
PMON96125	rice G1073-like 1	PHE0001233	A	POS(c)	NA	NA
PMON96536	rice G1073-like 1	PHE0001233	D	POS(b)	NA	NA
PMON83774	soy DUF296	PHE0003447	B	Neu	screened	NA
PMON84792	soy DUF296	PHE0003447	B	POS(c)	NA	NA
PMON96084	Arabidopsis G1067	PHE0004847	E	Neu	NA	Neu
PMON96085	Arabidopsis G1067	PHE0004847	D	Neu	NA	NA

Table 2. Analysis of corn plants overexpressing G1073 and related sequences for enhanced water use efficiency Field and Greenhouse Data 2004-2009

Construct Name	Gene Description	Gene ID	Promoter	Field* Screen	Greenhouse Wilt Screen	WUE Field Trial**
PMON100458	PHE0000372 G1073	PHE0000372	A	Screened	NA	NA
PMON72460	PHE0000372 G1073	PHE0000372	B	Screened	POS (a)	NEU
PMON96050	PHE0000372 G1073	PHE0000372	C	POS (c)	POS (a)	NEU
PMON96088	PHE0000372 G1073	PHE0000372	D	Screened	NEU	POS (a)
PMON96125	rice G1073-like 1	PHE0001233	A	POS (c)	NA	POS (b)
PMON96536	rice G1073-like 1	PHE0001233	D	POS (b)	NA	NEU
PMON83774	soy DUF296	PHE0003447	B	Screened	NEU	NA
PMON84792	soy DUF296	PHE0003447	B	POS (c)	NA	NA
PMON96084	Arabidopsis G1067	PHE0004847	E	Screened	NA	NEU
PMON96085	Arabidopsis G1067	PHE0004847	D	Screened	NA	POS (c)

* Field Screen refers to a field level screen used to identify transgenic corn plants having improved plant growth under water deficit conditions. This screen detects significance at the construct level.

For Field Screen:

Screened indicates the construct was included in the population of plants in the field but the construct was not selected as significantly positive.

Pos (b) for field screen indicates a positive result at $P \leq 0.05$ for the construct

Pos (c) for field screen indicates a positive result at $P \leq 0.1$for the construct

** WUE Field Trial is a replicated yield trial under water deficit conditions.

For Wilt Screen and WUE Field Trial:

POS(a) indicates a positive result at $P \leq 0.1$ for at least 25% (and at least 2) of events tested

POS(b) indicates a positive result at $P \leq 0.1$ for at least 25% (and at least 2) of events tested OR construct level analysis significantly pos at $P \leq 0.1$

POS(c) indicates a positive result at $P \leq 0.1$ for $\geq 10\%$ of the events

NA indicates the construct was not tested in that screen or trial.
NEU indicates the construct was neither POS or NEG.
NEG indicates ≥50% of the events were significantly negative at P≤0.1

promoter	tissue category
A	leaf
B	constitutive
C	epidermal enhanced
D	root
E	phloem

4. I hereby declare that all statements made herein are true and that they are based on my own knowledge, information and belief. These statements are made with the knowledge that willful false statements are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issued from it.

Paul Chomet
Senior Scientist, Water Use Efficiency Discovery Team
Monsanto Company

Date: July 2, 2010